Wafers to use:

The wafers for process calibration are ordered from a wafer supplier that sells high grade, quality wafers. These are 4-inch Si wafers, with low particle count (Particles: <=10 @ >=0.3 microns). Wafers should be handled carefully, because every loading and unloading will add some particulates.

Regular Prime grade wafers also work well, but note that initial pre-process particle measurement may be higher - this is ok as long as you measure *before* the process step, and subtract that value from the *after* process value. If your *before* measurement shows high (eg. >200 particles), do not use that wafer for particle checks, discard it and find a better wafer.

Surfscan 6200 (located in bay5) is used for scanning wafers. There are two standard recipes that could be used for scanning wafers: UCSBTEST1 (for scanning 8" wafers) and UCSBTEST2 (for scanning 4"wafers). The recipe UCSBTEST2 is used as a template to create other two standard recipes: "UCSB GAIN4 0.16-1.6" (measuring small particles 0.16-1.6um) and "UCSB GAIN2 1.6-28.0" (measuring larger particles 1.6-28um).

We have cassettes for 4", 6" and 8" wafers. If you plan to scan wafers that have different size, you need to provide your own cassette and calibrate it. If you need to scan wafer pieces, you need to develop your own procedure for how to scan it (most likely you need to mount the wafer piece on 4' carrier wafer). If you use 6" or 8" cassette please put it back in the cassette box.

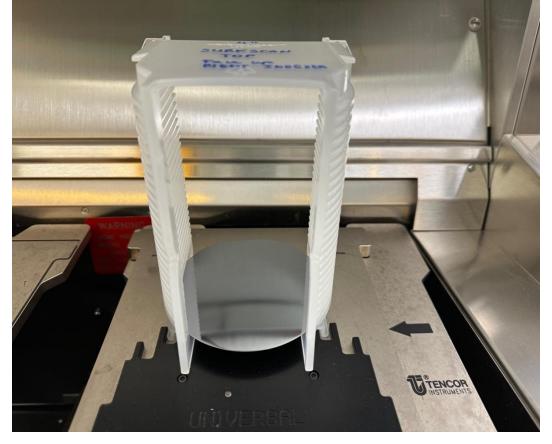
The standard (DEFAULT) carrier for right indexer should always be 4" carrier.

Scanning procedure for 4" Si wafers:

The **right-cassette/indexer** is calibrated for 4-inch, 5-inch and 6inch wafers. The **left-cassette/indexer** is available for 8-inch wafers (not calibrated).

Scan before process step:

- 1. Log in (access code is boss)
- 2. Load wafers (face up) to the cassette that says " 4inch Surfscan"
- 3. Place the cassette with wafers to the right indexer (please check the photo bellow)



- 4. In the menu option select "CASS" (this will read all wafers that are loaded into the cassette)
- 5. Go to "Recipes"
- 6. Select one of the recipes:
 - UCSB GAIN4 0.16-1.6 (measuring small particles 0.16-1.6um)
 - UCSB GAIN2 1.6-28.0 (measuring larger particles 1.6-28um)
 - Recipe "UCSBTEST2" is used as a template to create recipes UCSB Gain2 and UCSB Gain4
- 7. View the recipe and modify it if needed
- 8. If the recipe is modified, select bin split/default to save changes

Recipe CASS START	Scan (UCSB GAIN4 0.16-1.6) #99 loc Surfscar Move AUTO HOME HELP	16200
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2 View/Modify	A REAL PROPERTY OF A READ REAL PROPERTY OF A REAL P	
3 New		
4 Save 5 Save As	In the second	
<u>6</u> Set ID's	and the second	
Z Delete		
8 Go Remote		
9 Lot Id		
Extend puck	and the second	
0 Exit		
2 cm		
	A REAL PROPERTY AND A REAL	
1025		
Memory: 8023K (3452K Contiguoue)		
Tencor Instruments	Scan (UCSB GAIN4 0.16-1.6) ×99 loc Surfscar	16200
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	OLLECTION					
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Edge	From -> T	0	Limits			stogram 🗘
Flat / I	1 0.160	0.213	9999 🌢		OK	• •
Haze	2 0.213	0.284	9999 🌢		Cancel	
Max S	3 0.284	0.379	9999 🌢		Cuncer	μm
Thres	4 0.379	0.506	9999 🌢			Extended 🗘
Throu	5 0.506	0.675	9999 🌢			ppm
CONFI	6 0.675	0.900	9999 🌢			
Casse	7 0.900	1.20	9999	Defa	ult bin splits	10 / cm²
Sortin	8 1.20	1.60	9999 🌢	Number of Bin	s 8	ff 🗘
Auto /	9 Scratche	s and Areas	Count Range	Setting Auto	0	99 mm²
Auto (0	Haze	Bin Split S	equential	Ó	99 mm
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Auto :						000 ppm
Bare :						jion 100 %
-	0.160				1.60	
	Contraction of the					
Memory 90	(3K (3452K Contiguous)					

- 9. Select the wafer in the catalog box you want to scan, and press START (it would scan only **ONE** wafer)
- 10. Select **AUTO** option If you want to scan all wafers in the catalog box, followed by START
- 11. Wait until scan is finished
- 12. Record:
 - **LPD Cnt** (sum of all particles #1- #8), particles #1(0.160-0.213) um, particles #8(1.20-1.60) um
 - **Haze** (region (%), average(ppm), peak(ppm))
- 13. Take a picture of the scan (by phone)
- 14. Select "Home" so indexer moves up to loading/unloading position
- 15. Unload wafers
- 16. Log out

Data Recording:

- Run the above process TWICE: once for recipe "Gain 2" (sizes 1.6µm to 28µm) and another for recipe "Gain 4" (sizes 0.160µm to 1.6µm)
- Record the following:
 - "total particle count",
 - "Haze %" and
 - <u>Take photos of the results screen</u> showing all binning and wafer particle distribution. See example photos below

